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Not-So-Fine Tuning:

Bank of Canada Policy and Inflation since 1986

by

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Amid current controversy over the Bank of Canada's fight against inflation, it is important to remember what can, and what cannot, be expected of monetary policy. Canada's experience since 1986 provides two important lessons in this regard.

First, monetary policy exercises a powerful influence over inflation, with a lag averaging about two years. Recent inflationary pressure in Canada appears to have originated in a period of easy money in 1986–87. The Bank's increasingly tight stance since 1988, however, now seems to have put inflation on a downward track.

Second, the Bank's excessively easy policy of 1986–87 apparently resulted from too much attention to the lackluster outlook for the economy at that time, and too little attention to the behavior of the monetary aggregates. The result was an effort to keep interest rates and the Canadian dollar low, while money growth was allowed to accelerate.

The main implication of these lessons for current policy is that control of money growth, which is crucial to control of inflation, can be compromised by attempts to fine-tune the economy. The stresses involved with the Bank's current shift away from its previous inflationary stance highlight the importance of making monetary control — not the outlook for next quarter's GDP or the latest movement of the Canadian dollar — the centerpiece of Bank of Canada strategy.

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Introduction

Over the past 2½ years, Canadian monetary policy has become increasingly restrictive. The Bank of Canada's progressively tighter stance has been a key factor in the 5 percentage point rise in short-term interest rates and the 10 percent rise in the Canadian-U.S. dollar exchange rate over the period. Yet inflation, as measured by the Consumer Price Index or the more broadly based deflator for gross domestic product (GDP), seemed until recently to be stuck in a range around 4.5 to 5.5 percent. Not surprisingly, then, monetary policy has become a topic of considerable controversy.

This experience raises questions on two levels. Most fundamentally, some have expressed doubts about the ability of the Bank of Canada to bring inflation down, and — by extension — its ability to influence inflation at all. And for those who do acknowledge the Bank's ability to control inflation, it is natural to query the recent conduct of monetary policy, asking how the inflationary pressure that brought about the current monetary squeeze developed, and how Canada might avoid similar episodes in future. This *Inflation Monitor* addresses these issues.

With regard to the first set of questions, the *Monitor* argues that recent experience illustrates clearly the Bank's ability, through its control of the stock of money, to determine Canadian inflation. In particular, recent inflationary pressure was apparently permitted to develop during a period of loose monetary policy centered on late 1986 and early 1987. This influence now seems to be fading. One interpretation of past evidence suggests that the tightness of Bank policy since early 1989 is likely to be reflected in a downward trend in inflation (the impact of the Goods and Services Tax aside) during the next two years — although there are enough hints of continued inflationary pressure in the system to make this conclusion a tentative one.

The second set of questions is addressed through a close examination of the events of the 1986-88 period. The Bank appears, during that episode, to have put too much emphasis on "fine-tuning" real economic activity through management of interest rates and the exchange rate, and too little emphasis on money growth. As a result, the Bank put itself in danger — especially during the 1986–87 period — of losing control of monetary policy.

The principal conclusion arising from this review is that, if the Bank intends to keep Canada on a course for price stability, it must rededicate itself to the task of controlling money growth. The stance of monetary policy should be governed, not by developments in the short-term outlook for the economy or by the dollar's gyrations, but by whether monetary expansion is proceeding at a rate consistent with decelerating inflation. In the final analysis, it is on its control of money growth that the Bank's success or failure in controlling inflation depends.

Money and Inflation in Canada

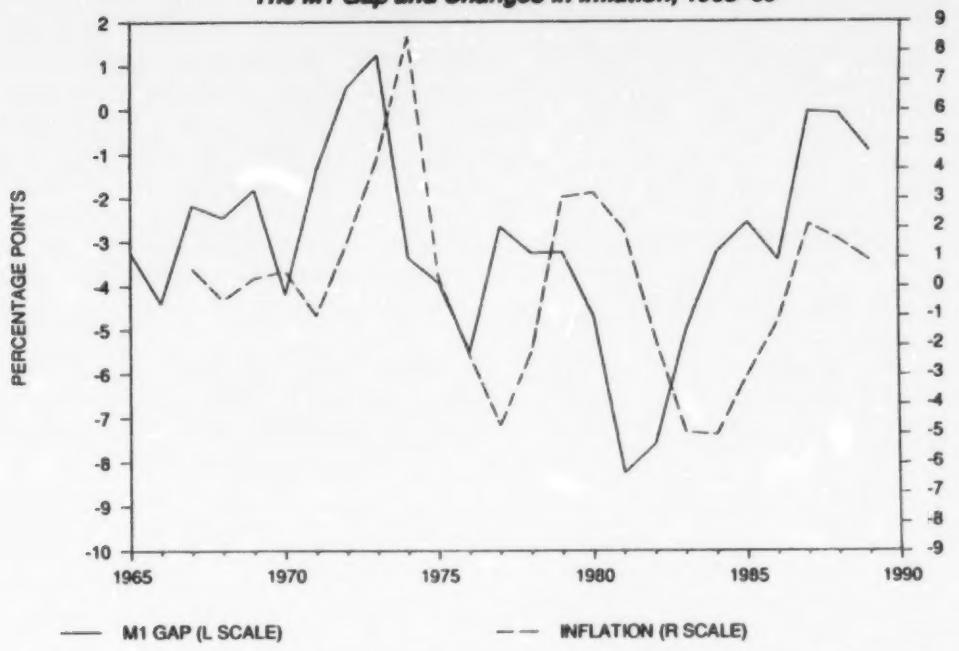
An examination of Canada's experience since 1986 has to start with two key facts about monetary policy and inflation: the link between inflation and money growth, and the tendency for changes in monetary policy to affect inflation with a rather long lag.

The Monetary Nature of Inflation

Although inflation is generally defined as a persistent increase in the general level of prices, it is just as accurate to describe it as a persistent decline in the value of money. And the value of money, like that of anything else, is determined by the balance of supply and demand. Over periods of time as long as five years or more, Canadian inflation — like that of other countries — is very closely related to the difference between the growth of the stock of money and the growth of the demand for *real* money balances, which can be roughly approximated by the growth of real GDP.[1]

Figure 1

The M1 Gap and Changes in Inflation, 1965–89



Note: The M1 gap is a three-year moving average of annual growth of M1 minus annual growth of nominal GDP. Changes in inflation are measured by the annual increase in the GDP deflator minus its average annual increase during the previous three years.

Source: C.D. Howe Institute calculations based on data from the Bank of Canada and Statistics Canada, *National Income and Expenditure Accounts*.

Over the long term, then, the Bank of Canada can determine the rate of inflation by controlling the rate at which money is created. This power is in stark contrast to the well-established inability of monetary policy to exercise long-term control over the rate at which the economy expands in real terms.[2]

Lags in the Impact of Monetary Policy

While the long-term links between money growth and inflation are clear, shorter-term relationships can be more difficult to trace and are more controversial. This is because changes in Bank policy affect the rate of inflation only after a lag, during which output and employment are temporarily affected.

Over shorter spans of time, a given rate of inflation is largely "built in" to the economy and is, as a result, an additional key factor determining growth of demand for money balances. Accordingly, one can obtain a sense of the impact of changes in the stance of monetary policy over shorter periods by looking at a measure of the growth of money relative to the growth of demand for *nominal* money balances, which can be represented (though not precisely) by the growth of nominal GDP.

Figure 1 shows one such summary measure of the ease or tightness of monetary policy along with subsequent changes in inflation: the solid line represents the difference between the growth of M1 and the growth of nominal GDP, or the "M1 gap", while the dashed line shows changes in the rate of inflation from the previous three years' average (see Box 1). This figure indicates that, over the past 25 years, there has been a lag averaging about two years between changes in the stance of

Box 1

The Significance of the M1 Gap

Over long periods of time — five years or more — the rate of inflation is a function of the difference between the growth of the *nominal* money stock and the growth of demand for *real* money balances. If it appears that, over the long term, demand for real money balances is likely to grow at, say, 3 percent annually, setting monetary policy on a course to produce growth in the nominal money stock of 3 percent annually should produce stable prices — in the long term.

Over shorter periods of time, however, this type of calculation is complicated because previously determined inflation tends to persist, and because the level of prices affects demand for nominal money balances. In particular, demand for nominal money balances moves — other things being equal — in proportion to the general price level, since changes in prices change the amount of nominal money needed to carry out the same volume of real transactions.

For this reason, a sense of the shorter-term stance of monetary policy — and hence its influence over likely future changes in (first) output and (second) inflation — can be obtained by comparing the growth in the nominal money stock to the growth in demand for nominal money balances. This is what the M1 gap attempts to do: it measures the difference between changes in a key monetary aggregate and changes in nominal GDP, a reasonable proxy of the nominal demand for money.

Similar measures could be constructed for other monetary aggregates. However, M1 — a relatively narrow definition of money, consisting of currency, and current and personal chequing accounts at chartered banks — tends to register changes in Bank of Canada policy quite quickly, and seems therefore to be the best aggregate to use in discussing contemporary Bank actions. The broader aggregates, such as M2 — which also includes personal savings and nonpersonal notice deposits — typically reflect changes in the stance of monetary policy more slowly.

Finally, it is worth emphasizing that GDP is only a proxy for M1 demand. M1 demand has actually tended to grow on average more slowly than nominal GDP. As a result, the gap between M1 growth and nominal GDP growth that has historically been consistent with stable inflation is between -2 and -4 percentage points.

monetary policy, as reflected in the M1 gap, and changes in inflation.[3]

The Roots of Recent Inflation

Turning to the more recent period, two aspects of Canada's experience over the past five years stand out from Figure 1. First, while the inflationary pressure currently evident in the Canadian economy is often described in terms of wage demands, indirect taxes, and overheated markets in particular regions, this pressure was also preceded by a period of expansionary monetary policy — reflected in a high level of the M1 gap — two to three years ago. Second, however, the rise in inflation after 1987 was less severe than the behavior of the M1 gap would have suggested.

If recent inflationary pressure has its origins in the 1986–88 period, it seems appropriate to subject this episode to closer scrutiny, in the hope that some lessons can be drawn from it that might help Canada avoid similar cycles of inflation and disinflation in the future. The remainder of this *Monitor* does this: first, by setting the stage with a summary of economic and financial developments in the 1986–88 period; next, by looking at three possible influences — the outlook for the economy, the behavior of the Canadian dollar, and the nature of the Bank's own monitoring of the situation — on the Bank's behavior during that episode; and finally, by examining the implications of this experience for the Bank's current policy choices.

The Economic and Monetary Environment, 1986–88

From Bust to Boom: The Real Economy

The 1986–88 period was an eventful one for the Canadian economy. At its outset, the out-

look was bright. Real GDP had expanded by close to 5 percent in 1985. With the recovery apparently spreading from central Canada to the regions, forecasters generally expected another solid year in 1986.

But the turn of the year was marked by a collapse of commodity prices, particularly for oil and wheat, which dealt a blow to the incipient recovery in western Canada. In addition, slower growth in the United States and in Canada's overseas trading partners hurt export demand from all regions. As a result, economic performance in 1986 was considerably weaker than expected. Despite signs of recovering demand in the second half, this weakness was reflected in generally subdued forecasts for growth in 1987.

As it turned out, 1987 also defied expectations — but in the opposite direction. Demand accelerated rapidly from the beginning of the year, with consumption, investment, and exports all contributing to a broadly based boom. Healthy increases in prices for forest products and a recovery in energy prices around midyear added fuel to the fire.

By the end of 1987, real output was up more than 6 percent from its level a year earlier, exports were surging, business investment was rising at an annual rate of better than 25 percent for the third quarter in a row, and numerous sectors of the economy were operating close to capacity. The stock market crash in October raised some doubts about the durability of the expansion and caused downward revisions to most forecasts for 1988. But growth continued unchecked: real GDP expanded by 4.4 percent in 1988, more than two-thirds again as fast as forecasters had anticipated at the beginning of the year.

From Weakness to Strength: The Canadian Dollar

The fortunes of the dollar also changed markedly from 1986 to 1988. At the beginning of 1986, collapsing commodity prices and growing misgivings among investors about the federal government's fiscal position produced a run on the dollar that at one point drove it down to 69 U.S. cents.

The dollar subsequently recovered to trade around 72 cents through most of 1986. It then appreciated sharply late in the year and into the spring of 1987 — reaching almost 77 cents in April — as export volumes recovered and firmer export prices contributed to a steady improvement in Canada's terms of trade. After falling back briefly to the 75 cent range, the dollar — buoyed by strong exports and continued improvement in the terms of trade — began a steady upward climb that continued almost uninterrupted through the first half of 1988.

A faltering trade performance and renewed weakness in energy prices checked the dollar's advance after it peaked in July 1988 just short of 84 cents. But toward the end of the year, both exports and the terms of trade were showing new strength, and the dollar moved up from a September low of 80.6 cents to close the year back around the 84 cent level.

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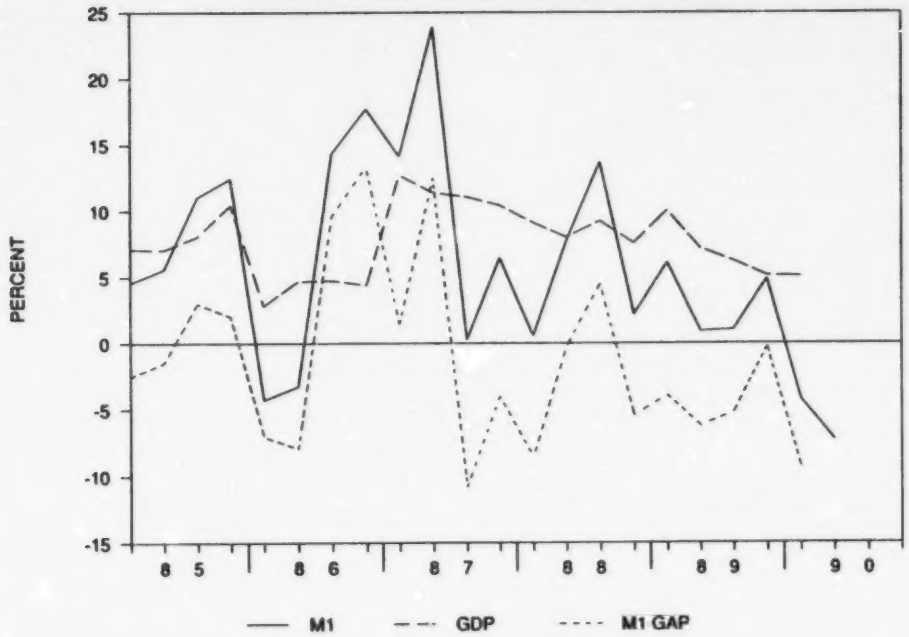
Figure 2

M1, Nominal GDP, and the M1 Gap

(quarterly changes at seasonally adjusted annual rates)



Sources: Bank of Canada; Statistics Canada, *National Income and Expenditure Accounts.*

From Easy to Tight: The Stance of Monetary Policy

Developments in monetary conditions over the past five years can be tracked through two types of indicators: money growth and interest rates.

Figure 2 shows quarterly growth rates of M1 and nominal GDP, as well as the difference between them, since 1985 — a quarterly version of the M1 gap illustrated earlier. After being quite restrictive in early 1986 — as is evident in the fall in M1 and the negative position of the M1 gap at that time — monetary policy became markedly expansionary after mid-year. The annualized rate of growth of M1 accelerated to better than 10 percent in the second half of the year (about 6 percentage points faster than the growth in nominal GDP over the same period) and to over 17 percent in the first half of 1987 (more than 7 percentage points faster than GDP growth).

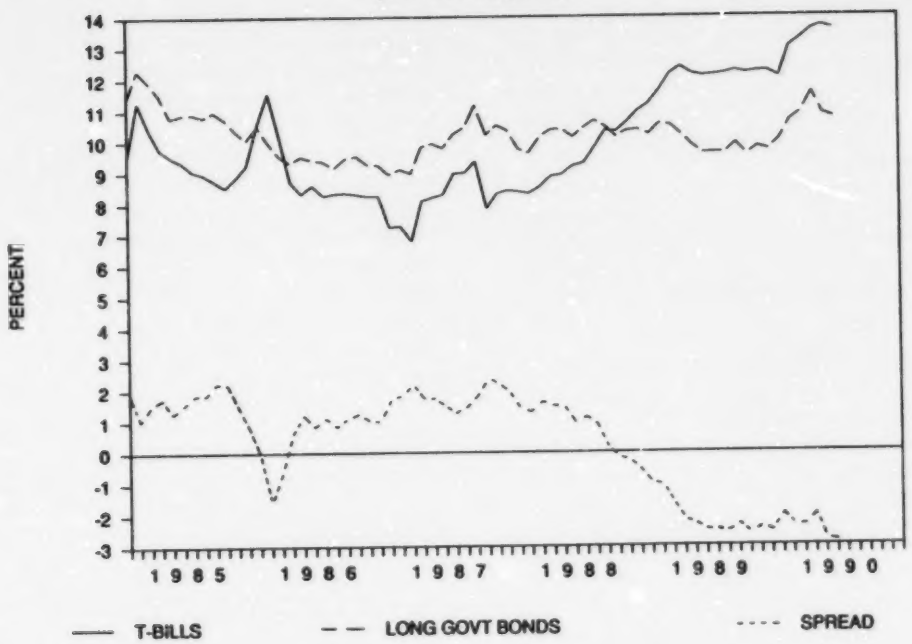
The behavior of M1 and the M1 gap suggest that monetary policy subsequently became more restrictive, a stance that — though punctuated by an easier spell in the wake of the October stock market crash — lasted through early 1988. A further easier period in mid-1988 is also evident before monetary policy settled late that year into a much tighter mode.

Corroboration of the story told by the M1 gap is provided by Figure 3, which shows representative long- and short-term interest rates, as well as the spread between them, over the same period (see Box 2). This figure also indicates that after a restrictive spell in early 1986 — evident in a sharp upward movement of short interest rates and an inversion of the yield spread — monetary policy eased progressively. Short rates moved downward, and the spread of long over short rates steepened, into the spring of 1987.

Figure 3

Short and Long Interest Rates

(month-end figures)



Source: Bank of Canada.

From early 1987 on, interest-rate movements suggest a gradual tightening of monetary policy. After the brief easier period late in the year, the restrictiveness became much more pronounced (the mid-1988 easing suggested by the M1 gap is not as evident in the profile of interest rates). By the spring of 1989, this tight policy was reflected in a steeply inverted yield spread, which has lasted to the present.

Factors Behind the Bank's Actions, 1986–88

With the advantage of hindsight, it is possible to identify three potential influences on monetary policy during the 1986–88 period that may account for its undue expansiveness: perceptions of the state of the real economy; the behavior of the exchange rate; and a negative factor — the relative lack of attention paid to money growth.

Fine-Tuning Real Activity

The pattern of economic and monetary events just described is consistent with the view that monetary policy during the 1986–88 period was highly sensitive to developments in the outlook for real economic activity — an interpretation which is supported by contemporary Bank of Canada announcements.

By mid-1986, Bank policy appears to have become increasingly conditioned by growing evidence of weakness in the Canadian economy. Statistics Canada's early 1986 survey of investment intentions confirmed fears about the impact of lower oil prices on the still-fragile west, setting back a hoped-for convergence of economic performance in the regions.[4] Export volumes fell in the second quarter, and the emergence throughout the year of lower-than-expected growth, both abroad — particularly in the United States, West Germany, and Japan — as well as in most domestic sectors,

Box 2

Judging the Stance of Monetary Policy

Although the conduct of monetary policy is described in this *Inflation Monitor* primarily in terms of the behavior of M1 — since M1 tends to respond rapidly to changes in the Bank of Canada's stance, and signals future changes in the real economy and inflation fairly reliably — there is no single hard-and-fast indicator of monetary ease or tightness. Another useful tool in judging the Bank's monetary stance is the level of short-term interest rates, both absolutely and relative to long-term rates. A brief examination of how the Bank actually conducts monetary policy shows why.

The Bank effects changes in the stance of monetary policy by changing the composition and size of its balance sheet — its assets and liabilities. It does this most often by transferring government cash in and out of deposits at the chartered banks and other directly-clearing members of the Canadian Payments Association, and less frequently by buying and selling securities from financial institutions. Both of these types of operations affect the liquidity of the financial system.

For example, when the Bank wants to ease and makes additional cash available, financial institutions are more willing to extend short-term credit, which lowers day-to-day loan rates, and to carry inventories of securities such as treasury bills and corporate paper, which tends to reduce interest rates on these securities. This activity is at the heart of the process of extension and redeposit of credit that determines the rate of growth of the money stock and, ultimately, the rate of inflation.

Because these operations have their strongest influence on the short end of the interest-rate spectrum, short-term interest rates are a good indicator of Bank policy. Considered in isolation, however, the level of short-term rates can be misleading, since the entire structure of interest rates is influenced by factors — such as the level of world interest rates and investors' assessments of political developments — that are largely, or completely, outside the Bank's control. For this reason, it is helpful to supplement the information provided by short-term rates by looking as well at the spread between them and long-term rates, which are less directly affected by changes in Bank policy.

It should also be noted that the exchange rate — which is influenced by movements in short-term interest rates arising from the easing and tightening of monetary policy — is a key part of the mechanism by which changes in Bank policy are transmitted to real activity and inflation. The Bank's treatment of the exchange rate is discussed later.

prompted the Bank to continue easing into early 1987, even as fragmentary evidence (such as surging housing starts) suggested a recovering economy toward year-end.[5]

The full extent of the economy's buoyancy in 1987 was not apparent until well into the year. Even in late April, the Bank was actively resisting upward market pressure on interest rates.[6] By the second half, when the scale of the boom was beginning to become apparent, monetary conditions were eventually tightened. The resulting rise in short-term rates was, however, cut short by the October stock market crash, which raised widespread fears of a renewed economic slowdown. Only when the fact of continued solid expansion in early 1988 became evident did the Bank adopt a more systematically restrictive stance.

Focus on the Canadian Dollar

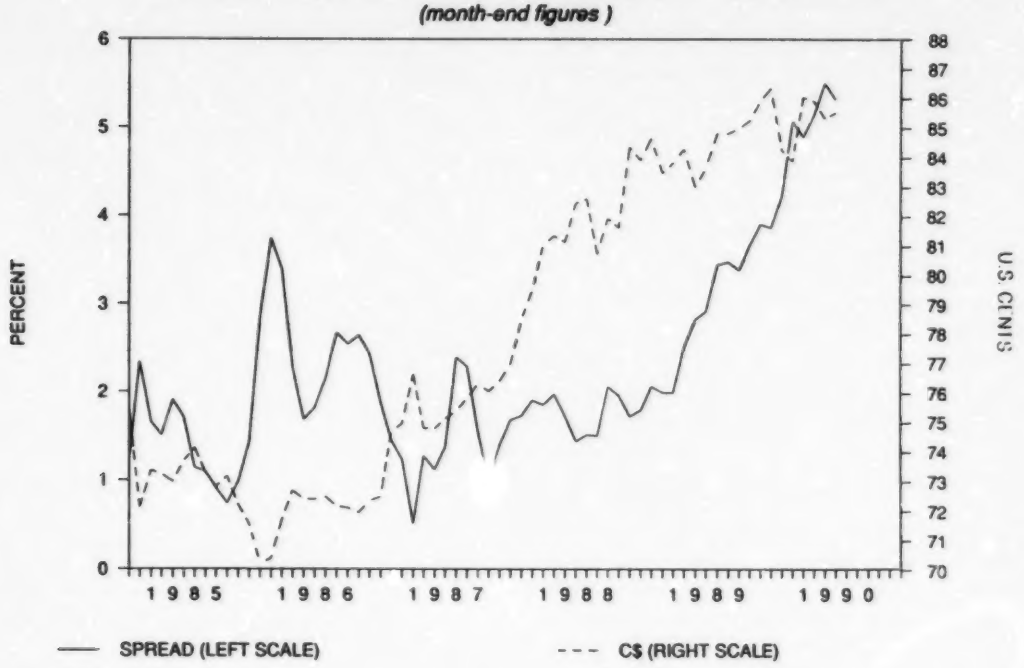
Exchange-rate developments also appear to have had some influence on monetary policy during the 1986–88 period.[7] Nineteen eighty-six began with the heavy run on the dollar, which was halted only after the spread of short interest rates against those in the United States rose by about 3 percentage points in as many months. For the next year and a half, the value of the dollar appears to have been a key determinant of monetary policy.

Some evidence bearing on this point for the period running from 1986 into the first half of 1987 is suggested by Figure 4, which shows the spread between Canadian and U.S. short-term (90-day corporate paper) interest rates, along with the Canadian-U.S. dollar exchange

Figure 4

Canada-U.S. Short Interest-Rate Spreads and the Canadian Dollar

(month-end figures)



Source: Bank of Canada.

rate. As the dollar recovered from its early 1986 trough, spreads against U.S. interest rates were allowed to narrow. The generally weakening exchange-rate trend of the next few months was accompanied by a renewed widening of spreads in support of the dollar.[8]

The damping influence that this had on the generally easy monetary conditions of the time was dramatically reversed when the dollar began its strong terms-of-trade-related upward move in early 1987. Short-term rates were allowed to fall sharply, narrowing the spread against U.S. rates, and reinforcing the stimulative thrust of monetary policy evident in the rapid growth of M1 already under way.

By late 1987, as the strength of the boom became apparent, the Bank was prepared to see the interest-rate spread against U.S. rates and the dollar both rise. The mirror-image behavior of Canada-U.S. yield spreads and the exchange rate is less clear-cut from then on, although there was another period in mid-1988 when strength in the dollar and narrowing yield spreads were accompanied by renewed vigorous growth of M1 (see Box 3).

The Reduced Emphasis on M1

In retrospect, it appears clear that the Bank would have obtained an earlier fix on the spending pressure welling up in the economy in late 1986 and early 1987 if it had paid more attention to the behavior of the monetary aggregates — M1 in particular.

The reason for its inattention here is well known: the Bank had formally abandoned its seven-year-old policy of targeting M1 in late 1982, at a time when financial innovations appeared to have made the relationship between M1 and total spending in the economy too unstable for an M1 target to have any value. And the volatile behavior of M1 during the next two years, as the economy and inter-

Box 3

Foreign-Exchange Interventions and the Money Supply

An interesting and potentially important aspect of the Bank of Canada's activities regarding the Canadian dollar during this period is its interventions in the foreign-exchange market on behalf of the Department of Finance.

During the periods of dollar strength in early 1987 and again in late 1987 and early 1988, the Bank undertook foreign-exchange interventions on a massive scale, selling Canadian dollars in the foreign-exchange market in an attempt to resist the dollar's rise. The extraordinary size of Canadian dollar sales during this period is indicated by the increase in Canada's foreign-exchange reserves: after finishing 1986 at just over US$4 billion — roughly equal to the average level over the previous decade — the reserves doubled to over US$8 billion by the end of 1987, and doubled again to over US$16 billion by the end of 1988.

The immediate impact of the Bank's purchases or sales of Canadian dollars in foreign-exchange markets is "sterilized" by offsetting operations in domestic securities markets and in the Bank's own balance sheet. Sterilization of dollar sales — which involves withdrawals of liquidity from the financial system — forestalls any potential immediate expansionary impact on the domestic money supply. But it also puts upward pressure on short interest rates. If, as a result, short rates move higher than the Bank would otherwise wish, monetary policy may subsequently ease — in which case, the foreign-exchange interventions become, in the end, inflationary.

Interestingly, both periods of heavy Canadian dollar sales were followed by periods of accelerating M1 growth. This suggests that the timing and extent of the Bank's foreign-exchange interventions may also have played a part in the excessively easy monetary conditions of the period.

Although the focus of this *Inflation Monitor* is on domestic events, it is worth noting that the February 1987 Louvre Accord, by which the finance ministers of the Group-of-Seven countries committed themselves to coordinated interventions in support of the weakening U.S. dollar, appears to have played a prominent role in the conduct of monetary policy in several countries during this period. There is considerable evidence that efforts by Japan, West Germany, and the United Kingdom to hold down the value of their currencies against the U.S. dollar resulted in accelerations of monetary growth and inflation in those countries.*

*See, for example, Jurgen von Hagen, "Monetary Targeting with Exchange Rate Constraints: The Bundesbank in the 1980s," *Federal Reserve Bank of St. Louis Review* (September/October 1989), pp. 53-69. Unfortunately, no similar study of the Canadian situation exists.

est rates went through a mini-cycle, appears to have reinforced a view — both inside and outside the Bank — that M1 was not an indicator of much importance.

Thus, although the Bank noted in its 1986 *Annual Report* that "Unlike many earlier periods, financial innovations did not exert a strong distorting influence on M1 growth in 1986," the mushrooming of M1 growth that occurred in the second half of the year was not accorded more than a passing mention.[9] It was only after this surge of liquidity had been followed by an obviously booming economy around mid-1987 that the Bank reacted by tightening policy in the period preceding the stock market crash.

Why Was Monetary Policy So Loose?

In summary, then, it appears that the easy stance of monetary policy in late 1986 and early 1987 was a deliberate response to the apparently weak prospects for the economy at the time, and that it was conditioned by a desire to avoid a pronounced appreciation of the Canadian dollar. (The Bank's exchange-rate strategy may also have contributed to the subsequent, less pronounced, expansionary period in mid-1988.) But it also appears likely that the *extent* of the 1986–87 easing was inadvertent, resulting from doubts about the reliability of M1 — the variable that was pointing most strongly to a very expansionary stance — as a guide.

The Bank's Current Choices

What light does this discussion shed on the Bank of Canada's current policy choices? Although recent evidence on the inflation outlook is promising, there are important reasons for arguing in favor of a continued cautious monetary policy stance. Above all, however, this episode highlights the need for the Bank to narrow its focus and to make containing growth in the monetary aggregates its overriding objective.

The Case for Easing

Since early 1989, the stance of monetary policy, as measured with reference to M1 or interest rates, has been tight. M1 has been falling — during the second quarter of 1990, the average level of M1 was back to its level in the fourth quarter of 1988, making the M1 gap strongly negative — and short interest rates have been 2–3 percent above long rates for more than a year.

One reading of the historical relationships shown in Figure 1 would indicate that Canadians can expect to see a stabilization of inflation through the rest of 1990, and a decline in 1991 (the one-time impact of the Goods and Services Tax aside). In fact, other leading and coincident indicators of spending pressure in the economy — the broader monetary aggregates (particularly M2) and consumer credit — are now beginning to slow. Preliminary evidence of the economic slowdown that inevitably precedes declining inflation is now coming out. These facts suggest that Canada is now on a path toward price stability.

The Case for Caution

There are, however, important reasons for not counselling a pronounced easing of monetary policy. One is implicit in the historical relationships just mentioned — namely, that Canada has so far avoided an acceleration of inflation as severe as the M1 gap over the 1986–88 period would have led one to predict.

It is possible that a lasting shift in the past relationship between M1 and GDP has occurred and that further upward pressure on inflation will be avoided. But it is also possible that the lag involved is a little longer than usual and that there is still significant inflationary pressure in the system. Most noteworthy in this connection is the fact that the strength of the Canadian dollar over the past three years has helped on the inflation front by keeping import prices down; if the dollar retraces some of its recent advances, upward price pressure from this source will come through.

Beyond the subtleties of interpreting recent monthly numbers, moreover, lies the critical issue of the Bank's credibility. Economic theory suggests strongly that the short-term decline in output and employment involved with reducing inflation will be less if individuals and businesses are sufficiently convinced of the Bank's determination that they factor lower inflation into planned changes in wages and prices. Unfortunately, however, the inflationary experience of recent years can only have damaged the Bank's credibility.

Accelerating wage settlements and the persistence of long-term interest rates some 6 percentage points above the rate of inflation are suggestive of strongly entrenched inflation expectations in Canada. It is widely anticipated that the imposition of the Goods and Services Tax will lead to further, ongoing, wage-price pressures. And the projections in the February 1990 federal budget — real GDP growth of 3 percent and short-term interest rates of 9.5 percent in 1991, followed by inflation averaging 3 percent from 1992 to 1995 — show an economic plan involving a looser monetary policy than that now in place. In this context, a pronounced easing of monetary policy, reflected in a sharp rebound in M1 growth and a rapid return to a positive spread of long over short interest rates, would carry the additional danger of reinforcing skepticism about Governor John Crow's commitment to bring inflation down.

The Case for an Increased Focus on Money Growth

Whatever the Bank's stance in coming months, however, the key lesson arising from this review is that it should be the growth of the monetary aggregates — not the outlook for the next quarter's real GDP, or the latest movement of the Canadian dollar — which determines that stance. The Bank's success in bringing inflation down depends, ultimately, on its control of money growth. And it cannot control money growth if it is trying to fine-tune the economy and manage the level of the Canadian dollar in the foreign-exchange market.

During the past five years, these latter objectives appear at times to have played a major role in determining the stance of monetary policy. As a result, Canada has experienced unnecessary inflationary pressure, and Canadians have felt the stresses of a shift to a disinflationary stance correspondingly more keenly. Controlling money growth should from now on be the centerpiece of the Bank's anti-inflation strategy.

Notes

1 This is only one, albeit important, factor affecting the demand for money. For a further discussion of the long-term relationship between money growth in excess of the growth of demand for real money balances and inflation, see David E.W. Laidler and William B P. Robson, *Mainly Money: The Cause of Canadian Inflation*, Inflation Monitor 4 (Toronto: C.D. Howe Institute, 1990).

2 See Douglas D. Purvis, "The Bank of Canada and the Pursuit of Price Stability," in Richard E. Lipsey (ed.), *Zero Inflation: The Goal of Price Stability* (Toronto: C.D. Howe Institute, 1990).

3 It is interesting to note from Figure 1 that, although the oil shocks of 1973 and 1979 had an important impact on the timing and severity of the bouts of inflation that followed them, those bouts of inflation were, in fact, largely prefigured by upward movements in the M1 gap some two years before. (Thus, previous expansionary monetary policy meant that the oil price rises appeared not as sharp changes in relative prices amid a generally stable price level, but as particularly dramatic events amid generally rising prices — and were therefore widely seen as having caused the inflation.) By contrast, Figure 1 shows that the decelerations of inflation of the mid-to-late 1970s and early 1980s were signalled in advance by pronounced downward shifts in the M1 gap.

4 For the Bank's analysis of the state of the economy, see "Economic Developments in the First Half of 1986," *Bank of Canada Review*, September 1986.

5 This account should not be read as implying that the Bank was particularly inept in its monitoring and forecasting of the economy. The Bank was certainly not alone in misjudging the underlying strength of the economy in early 1987: the private-sector "consensus" forecast published in the 1987 federal budget at the beginning of the year was for real growth of 2.4 percent — the latest estimate puts the actual increase at 4 percent.

6 See the minutes of the meeting of the Bank's Board of Directors on May 8, 1987, reproduced in *Bank of Canada Review*, July 1987. The release of the first quarter estimates of the national income and expenditure accounts (NIEA), which give the most comprehensive measures of the state of the economy — including the growth of real GDP — generally does not occur until well into June, because of revisions to historical data. Thus, in May, the Bank's own monitoring only suggested that real growth in the first quarter of 1987 "may have been over 4 percent [seasonally adjusted annual rate]"; the first quarter NIEA estimate was 6.2 percent (since revised up to 7.2).

7 The Bank's main concern is generally with the trade-weighted value of the dollar, rather than with its performance against the U.S. dollar alone. The difference between the two measures is not very great during this period, however, and for simplicity of presentation — especially when interest-rate spreads are being discussed — it seems preferable to restrict the discussion to the exchange rate against the U.S. dollar only.

8 The Bank's exchange-rate strategy was summarized in Governor Bouey's introductory statement at the press conference following the release of the Bank's *Annual Report 1986* (reproduced in *Bank of Canada Review*, March 1987).

9 Bank of Canada, *Annual Report 1986*, p. 26. The behavior of M1 appears in more recent times to have figured more prominently in the conduct of monetary policy. Research at the Bank has confirmed the value of M1 as well as the broader monetary aggregates M2 and M2+ as leading indicators of real output and inflation. But the difficulty of explaining *why* the monetary aggregates contain the information that they do deprives their formal monitoring or targeting of a firm theoretical foundation.